
The 2012 Annual Report

of the City of Columbus – City Utilities

City of Columbus





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This Annual Report is prepared for the citizens of the City of Columbus and the following 2012 public officials:

Columbus Mayor:
The Honorable Kristen Brown

Columbus City Council:
*Dascal Bunch
Ryan Brand
Frank Jerome
Frank Miller
Tim Shuffett
Aaron Hankins
Jim Lienhoop*

Utility Board Members:
*Cheryl McAvoy
Clayton Force
Mark Gerstle
Greg Lacy
Barry Turner
Tim Shuffett, City Council
Liaison*





Executive Summary

Overview

2012 was supposed to be the year the Columbus City Utilities rededicated itself to improving its operations efficiencies. Not that the department had been inefficient before, but day to day operations in the prior six years had been overshadowed by the large capital improvements underway on the wastewater collection system. Improvements were indeed made in operations documentation, in preventive maintenance, and in employee safety programs and capital improvements continued, but if there was a single event that defined 2012 it had to be the drought.

The nation, Indiana and Columbus experienced the most severe drought in over 50 years. The demand placed upon the water system and the water supply while not unprecedented was extreme. Although there were tense moments, the Columbus system was able to provide all the necessary water to its customers with only voluntary conservation efforts from its customers.

The drought affected operations in water production, and distribution. It affected sewer billing and treatment and provided an almost interruption free construction season for our contractors.

While most of the large scale sewer improvements had been completed in the prior year there were still significant improvements being made to sewer systems in the Walesboro area and water line replacements in Central Avenue and as part of the City street improvements on downtown Fourth Street.

Organizational Overview

The Columbus City Utilities is a municipally owned water and wastewater utility serving the population of the City of Columbus and surrounding areas. The utilities operate under the authority of a non-paid five person Utility Service Board consisting of three members appointed by the Mayor of the City of Columbus and two members appointed by City Council.

The Utility Service Board appointed Keith Reeves P.E. as the Director of Utilities in 1997. Duties for the operations of the Department are further broken down as follows:

- Dale Langferman – Manager of Business Operations. Dale is responsible for Business and Financial staff (10 employees and 2 positions held vacant) and IT Operations and Support staff (3 employees)
- Ed Bergsieker – Manager of Engineering Operations. Ed is responsible for Engineering Services staff (2 employees and 1 position held vacant), Water Supply and Treatment staff (7 employees and 2 positions held vacant), Water Distribution staff (10 employees and 1 position held vacant) and Wastewater Collection (11 employees)



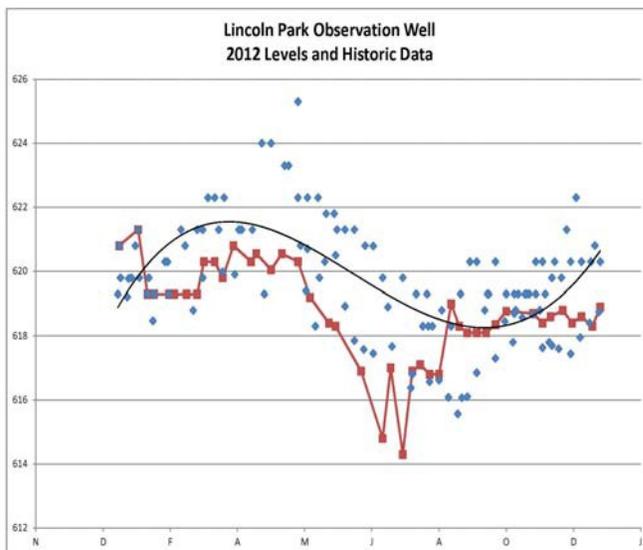
- Garry Pugh – Manager of Wastewater Treatment and Quality Control. Garry is responsible for Laboratory Services staff (5 employees), Industrial Surveillance staff (2 employees) and Wastewater Treatment staff (10 employees)

Water Supply

In 1988, and again in 1996, Bartholomew County was affected by localized drought. The peak daily water demand in those years was actually higher than was experienced in 2012. However in 1988, agricultural wells were a rarity and by 2012 they had become a necessary part of farming in the County. So more demand was being made in the natural aquifer we all draw from. Water is abundant and easy to obtain in much of the central part of the County, but in 2012 the demand for this water had never been greater and the CCU began weekly measurements of the local ground water levels to keep track of the supply and to predict when and if greater conservation efforts were needed.

Monitoring wells were checked in the northern part of the community, and at the Lincoln Park well field as well as several wells at and near the Fairgrounds well field.

During the most severe parts of the drought, the water levels dropped more than five feet lower than the average levels for that time of year. However, this also meant that the ground water level was still 25 feet above the public well screen. Columbus was never in danger of running out of water, but the experience did point out that we are not invulnerable to such an occurrence.





Water Production

In the historic 1988 drought there was a single day pumping demand of over 18 million gallons. The CCU met that demand, but had a single well or high service pump failed that day, it would have been necessary to limit service to some of our customers. Over the ensuing years, the CCU has had an ongoing program to increase its ability to reliably supply water to its customers in all situations. The treatment capacity at the Fairgrounds facility was doubled in 1992 and new wells were added in 1992, 1998 and 2011. These efforts paid off in 2012. Water demand for the year was over 3 billion gallons which was 28% higher than the previous five years and while there were pump failures and wells that failed to produce, the system had enough reserve capacity to meet the demand reliably throughout the year.

Water Distribution

Drought brings its own demands upon water distribution piping. While not visibility evident, high water demands stretch and expand pipes which contract again when the demand lessens. The repetitious expansion and contraction weakens older less elastic pipes which then break. A bit surprisingly, actual main breaks were 30% less than experienced in 2011, but the smaller water service lines behaved predictably and were 30% greater than the prior year.

Drought also increased the demand for irrigation water services. The early onset of the dry weather (not yet a drought) prompted customers to water their lawns before the beginning of the summer sewer allowance period. And while the City Council approved an unprecedented refund, the department encouraged customers to get independent metering for irrigation purposes to prevent problems such as this in the future. The department installed 390 new water services in 2012, up from 250 in the previous year.

The department has an ongoing program for many years to upgrade all water meters to drive by/radio read type meters. Upgrading meters provide more accurate readings and the radio read meters allow more to be done with less staff and less estimating when snow covered meters make manual reading impossible or inadvisable. The conversion process is 80% complete and we have already reduced our meter reading staff from four to two. Because of other commitments the department was unable to commit as much time to this effort as in previous years, but there were 1200 accounts converted in 2012.



Wastewater Summary

Wastewater Collection

Early in the year the sewer system experienced an unprecedented series of theft of manhole lids. There were over 20 manhole lids stolen throughout the City during a three month period. Police reports were made and newspaper stories asked the public to report any unusual vehicles. With the increased scrutiny of the Police, the public, the local scrap yards and the CCU staff, the thefts ceased even though no arrests were ever made.



The crews responded to 287 customer calls reporting a possible sewer main blockage. Of these, 195 were found to be issues in lines that are the customer's responsibility. Sewer crews cleaned 104,000 feet of pipelines in 2012, which represented approximately 10% of the community sewer system.

Wastewater Treatment

2012 marked the first full year of operations of the new wastewater treatment facility. While the facility actually began operations in 2011, the staff concentrated on reliably meeting and exceeding water quality requirements. In 2012, the focus moved to operational efficiencies and especially on the Cannibal sludge reduction system.

Sludge or bio-solids are the byproduct of the wastewater treatment process. Cannibal is a patented process of standardized process controls that promise to reduce sludge quantities by as much as 85%. The graph on the right shows the tons of sludge sent to the landfill each month compared to the tons of solids entering the plant as raw sewage. In the early months of the year, the ratio was very near one to one as the process was refined and the pounds wasted to the land fill was reduced dramatically. However, what the chart does not show is the marked increase in solids in remaining within the treatment process. Eventually, there was concern that the final effluent quality would be compromised, so the rate of wasting was increased as shown by the rise in the line in December.



Financial Health

Overview

The financial outlook and budget for the department is presented in detail in the Financial Plan and it is not intended to reiterate that level of detail here. The key issues for the year were: (1) The drought increased the sale of water (2) Early dryness and confusion surrounding the summer sewer allowance triggered an unprecedented refund of excess sewer charges for lawn watering during the month of May

As much of a hardship the drought was on the community and the water system, it was a welcome boon to the finances of the water utility. Water revenues were increased by 10% compared to the forecasted levels. This was not quite the windfall as it might first appear. In the prior six years expenses have exceeded revenue and the department has been able to hold rates constant because of the cash balances that were built up in the years before. In 2012 cash balances increased by \$354,000, to slightly over \$4M dollars.

The dryness that eventually became the drought began early in the year and many homeowners began watering their lawns in May. The CCU has had a long standing program of billing summer sewer charges (June, July, August and September) based upon winter water usage (February, March and April). Many customers complained of confusion over this ordinance and the Utility Board, the Mayor and the City Council joined together in deciding to refund all customers for excess sewage charges incurred during the month of May in 2012. It is not the CCU's intent to make this a regular event and there will be increased efforts to educating and accommodating customers early in the year to prevent any confusion in the future. Cash balances in the wastewater utility are still very high being part of the capital plan that is still ongoing and because of required debt reserves. Cash balance in the wastewater utility fell by \$238,500 but was still above \$17M.

2012 Capital Improvements

Overview

Even though the largest capital items have been completed there were still fairly significant capital improvements that occurred in 2012. The following capital improvements were made to the water and wastewater systems in 2012.



Walesboro Lift Station and Sewer Improvements

The Columbus sanitary sewer system is heavily dependent upon pumping. There are 70 sewage lift stations in the collection system varying in pumping capacity from a few thousand to several million gallons per day. The southernmost industrial developments of the City are served by a single pumping station located near the center of the former Walesboro airport. Growth in this area combined with clear water infiltration issues have created capacity problems with this lift station to the point that further growth would not be possible without improvements.

The existing lift station was replaced with a new 4MGD station, which represented a 285% increase on overall capacity from the previous station. The gravity sewers that feed this station were rehabilitated with a cured in place liner; and manholes were rehabilitated to curb the inflow problem; and slightly less than 2 miles of sewer force main was replaced along CR 150W. The work was broken down into two phases with Bowen Engineering and Miller Pipeline being the successful bidders on the two respective components. Plans, specifications and construction engineering services was provided by GRW Engineers.

The project was constructed on schedule with the department's capital plan, and utilized bond monies that were originally budgeted for change orders on the wastewater treatment plant construction that were unneeded there due to the favorable construction experience.

Garden City Farms Closure

Since the late 1980's the CCU has operated a bio-solids land application program on leased ground in the Garden City area. With the construction of the new wastewater treatment plant, bio-solids are now being disposed of at the landfill (at least for now). The CCU had the responsibility to properly close the bio-solids storage lagoon it had constructed and to remove all other sludge disposal facilities in order to restore the site and turn it back over to the property owner. Strand Engineers prepared the closure plan and the specifications and well as providing the on-site controls for the contractor. Renascent Inc. of Indianapolis was the contractor selected by public bid to perform this work.



Central Avenue Water

Working in cooperation with the City Engineer's office the CCU replaced a poor quality water main on Central Avenue from 25th Street to National Road. This section of main was installed in the mid 1950's and while it was certainly not the oldest pipe in the system, it had a history of routine failures. The line experienced breaks and leaks at the rate of one or two per year for the past fifteen years. Whether these failures are due to some defect in the original pipe or in the construction methods used to install it are impossible to determine at this late date.

When the staff heard that the City Engineer's office had planned to resurface this section of roadway, it was clear that it was in the public's best interest to replace this troubled pipeline prior to that work, not only to share in the economies and quality of a single road repair, but to lessen the likelihood that the new surface would not have to be cut prematurely. The plans and specifications were prepared by CCU staff and field inspection was also performed by CCU staff. The water line relocation was performed by Johanigam Excavating of Greensburg.

Fourth Street Water

The City, through the City Engineer and the Redevelopment Commission undertook the reconstruction of Fourth Street in the downtown from Jackson to Franklin. The design called for a center-line storm drainage system that conflicted with the existing location of the water line. The pipeline in question was one of the oldest in the system dating back close to 100 years and its replacement due to age and conflict was thought to be prudent. The relocation was made a component of the overall road project and was designed by Janssen and Spans Engineers and constructed by Reith Reilly Contractors, of Lafayette.